



JUL 08 2013

L-2013-211
10 CFR § 50.73


U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555-0001

Re: Turkey Point Unit 3
Docket No. 50-250
Reportable Event: 2013-007-00
Manual Reactor Trip due to Generator Load Drop

The attached Licensee Event Report 05000250/2013-007-00 is submitted in accordance with 10 CFR 50.73(a)(2)(iv)(A) due to manual actuation of the reactor protection system.

If there are any questions, please call Mr. Robert J. Tomonto at 305-246-7327.

Very truly yours,


Michael Kiley
Vice President
Turkey Point Nuclear Plant

Attachment

cc: Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, Turkey Point Nuclear Plant

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NRR

NRC FORM 366 (10-2010)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB: NO. 3150-0104		EXPIRES: 10/31/2013												
LICENSEE EVENT REPORT (LER)										Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resourse@nrc.gov , and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.									
1. FACILITY NAME					2. DOCKET NUMBER					3. PAGE									
Turkey Point Unit 3					05000250					1 of 4									
4. TITLE																			
Manual Reactor Trip due to Generator Load Drop																			
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED										
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME										
5	10	2013	2013	007	00	7	8	2013	FACILITY NAME										
									DOCKET NUMBER										
									DOCKET NUMBER										
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)																
Mode 1			<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(vii)																
			<input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(A)																
10. POWER LEVEL			<input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(viii)(B)																
			<input type="checkbox"/> 20.2203(a)(2)(i) <input type="checkbox"/> 50.36(c)(1)(i)(A) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(ix)(A)																
approx. 25%			<input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 50.36(c)(1)(ii)(A) <input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(x)																
			<input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 73.71(a)(4)																
			<input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 50.46(a)(3)(ii)0 <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 73.71(a)(5)																
			<input type="checkbox"/> 20.2203(a)(2)(v) <input type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> OTHER																
			<input type="checkbox"/> 20.2203(a)(2)(vi) <input type="checkbox"/> 50.73(a)(2)(i)(B) <input type="checkbox"/> 50.73(a)(2)(v)(D)																
			Specify in Abstract below or in NRC Form 366A																
12. LICENSEE CONTACT FOR THIS LER																			
NAME										TELEPHONE NUMBER (Include Area Code)									
Robert J. Tomonto										305-246-7327									
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT																			
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX										
14. SUPPLEMENTAL REPORT EXPECTED										15. EXPECTED SUBMISSION DATE		MONTH	DAY	YEAR					
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO									
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)																			
<p>On May 10, 2013, Unit 3 reactor was manually tripped in response to a sudden loss of turbine load at approximately 25% reactor power. Plant power was being reduced during a controlled shutdown for planned maintenance. The operating crew observed generator megawatts suddenly reduced to zero, with no operator action. The crew manually tripped the reactor. All systems responded as expected, except for source range nuclear instrument N-3-32 which experienced a loss of detector voltage.</p> <p>The root cause was determined to be an incorrect deadband pressure value of the Load Drop Anticipatory (LDA) circuit in the turbine control system.</p> <p>Corrective actions included reducing the dead band of the LDA pressure arming setpoint and adding indicator lights to the turbine control system display to identify armed status.</p>																			

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
Turkey Point Unit 3	05000250	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	Page 2 of 4
		2013	- 007	- 00	

NARRATIVE

DESCRIPTION OF THE EVENT

On May 10, 2013 at 1109, Unit 3 reactor was manually tripped in response to a sudden loss of turbine load at 25% reactor power. Plant power was being reduced during a controlled shutdown for planned maintenance. At approximately 25 % reactor power, the operating crew observed generator megawatts unexpectedly reduce to zero, with no operator action. The crew responded by tripping the reactor. Initial review showed the turbine intercept and control valves closing automatically, prior to the reactor trip.

Initial determination was that the load drop anticipatory (LDA) circuit responded and caused the overspeed protection circuit (OPC) header to drain hydraulic fluid from the control and intercept valves. The LDA is a protective feature that is designed to actuate when megawatt load is less than 20% while low pressure turbine inlet pressure is still greater than 50% load (based on low pressure turbine inlet steam pressure). The circuit is designed to anticipate an overspeed condition due to a sudden loss of generator load. The circuit is designed to disarm at less than 50% load (based on low pressure turbine inlet steam pressure). The LDA system setpoints for 50% load did not disarm the circuit as expected. The turbine control system received the megawatt load (less than 20% signal), and then actuated the LDA logic. The logic closed the intercept valves and control valves for 10 seconds, and then allowed them to reopen. The manual reactor trip resulted in a closure of all turbine valves before the position of the control valves and intercept valves was restored.

The NRC Operations Center was notified by Event Notification 49021 at approximately 1242 on May 10, 2013 in accordance with 10 CFR 50.72(b)(2)(iv)(B).

This event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) as "...any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section." The Reactor Protection System [JC] was manually actuated during the event and are included in the systems listed in paragraph (a)(2)(iv)(B).

CAUSE OF THE EVENT

Turkey Point Unit 4 implemented an extended power uprate. The turbine digital control system upgrade was one of the extensive changes to the secondary plant to support the extended power uprate. This new turbine control system incorporated the LDA circuit logic.

The root cause was determined to be ineffective implementation of the design change.

The contributing cause was the Human Factor Evaluation did not address the removal (without replacement indication) of the LDA armed lights.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
Turkey Point Unit 3	05000250	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	Page 3 of 4
		2013	- 007	- 00	

NARRATIVE**BACKGROUND INFORMATION****ANALYSIS OF EVENT**

Turkey Point Unit 4 implemented an extended power uprate. The turbine digital control system upgrade was one of the extensive changes to the secondary plant to support the extended power uprate (EPU). This system interfaced with the electro-hydraulic control (EHC) system.

During post modification testing (PMT) it was discovered that the LDA function quickly closed the control and intercept valves, but also dropped EHC header pressure which slowly closed other turbine steam valves that eventually would lead to a turbine trip. In response to this condition, engineering generated a change request notice (CRN) to correct this issue by revising the LDA pressure disarm logic to only monitor low pressure turbine inlet pressure.

To reset the LDA pressure armed value a dead band was established. The LDA system arming value was set to a pressure value of 100 psig, which was the predicted value of the low pressure turbine inlet pressure at 50% power. The dead band for LDA pressure had been incorrectly set to 50 psi. Subsequent adjustment during power ascension testing reduced the arming pressure value to 87.25 psig and this resulted in lowering the LDA disarmed value to 37.25 psig. Based on the available indication and the current procedural guidance, the Operations crew performed as expected.

This event could have been prevented, if the LDA armed status lights had been maintained, the control room operators could have correctly verified the status of the LDA system and stopped the downpower and corrected the condition. Additionally, if the dead band had been appropriate, an overlap arming of the two LDA parameters would not have occurred.

ANALYSIS OF SAFETY SIGNIFICANCE

During a planned shutdown, the operating crew manually tripped the reactor. All systems operated as expected during the reactor shutdown, with the exception of N-3-32 source range detector which experienced a loss of detector voltage. There was no impact on the health and safety of the public. As a result, the safety significance of this event is very low.

CORRECTIVE ACTIONS

Corrective actions are documented in AR 1873643 and include the following:

1. Reducing the dead band of the LDA pressure arming setpoint.
2. Adding indicator lights to the Turbine Control System display to identify armed status.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
Turkey Point Unit 3	05000250	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	Page 4 of 4
		2013	- 007	- 00	

NARRATIVE

FAILED COMPONENTS IDENTIFIED: None

PREVIOUS SIMILAR EVENTS: None